ASSIGNMENT 5

Textbook Assignment: "Rigging" and "Reinforcing Steel," pages 5-1 through 6-37.

Learning Objective: Recognize block-and-tackle arrangements used by Steelworkers.

5-1. The most important operation in rigging is safety.

1. True
2. False

5-2. The mechanical advantage of a machine is the amount a machine can multiply the force used to lift or move a load.

1. True
2. False

5-3. What term is used when blocks of a tackle are as close together as they can go?

1. Two-blocked
2. Fall
3. Running block
4. Standing block

5-4. What is a block called when it is attached to an object to be moved?

1. A two-block
2. A fall
3. A running block
4. A standing block

5-5. The "becket" holds the block together and supports the pins.

1. True
2. False

5-6. The "cheeks" are the solid sides of the frame or shell.

1. True
2. False

5-7. A "sheave" is a round grooved wheel over which the line runs.

1. True
2. False

5-8. The "breech" is the opening through which the line passes.

1. True
2. False

5-9. If you wish to rig a tackle using 1/2-inch wire rope, you should select blocks that have a sheave that are of what size, in diameter?

1. 10 inches
2. 14 inches
3. 18 inches
4. 20 inches

5-10. When it is necessary to change the direction of pull on a line, you should use what type of block?

1. Snatch
2. Standard
3. Leading
4. Double

5-11. Adding a snatch block does NOT increase the mechanical advantage, of a tackle system.

1. True
2. False

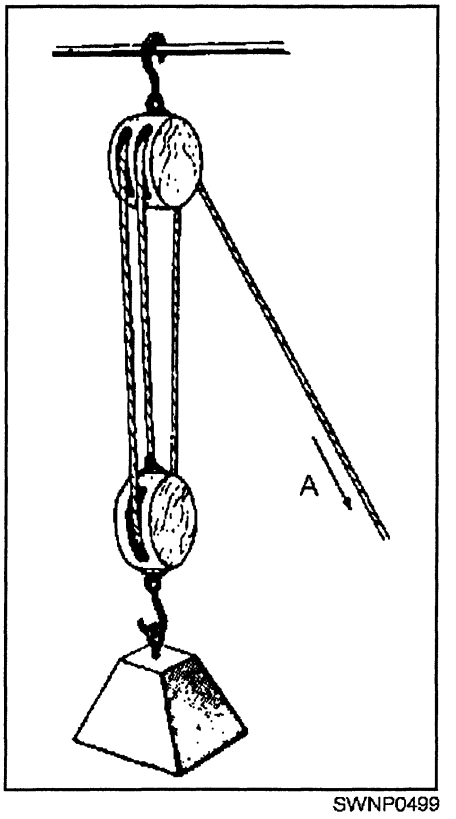

Figure 5A

IN ANSWERING QUESTIONS 5-12 THROUGH 5-14, REFER TO FIGURE 5A.

5-12. In reeving a tackle with the blocks shown in figure 5A, you should first insert the standing end of the fall as shown by what arrow?

1. A
2. B
3. C
4. D

5-13. If the load on the tackle weighs 150 pounds, what force must be applied at arrow A to hoist the load if the effects of friction are not considered?

1. 50 pounds
2. 100 pounds
3. 300 pounds
4. 450 pounds

5-14. If the load is 900 pounds, what total pull must be applied at arrow A to overcome the friction in the blocks and lift the load?

1. 300 pounds
2. 330 pounds
3. 390 pounds
4. 570 pounds

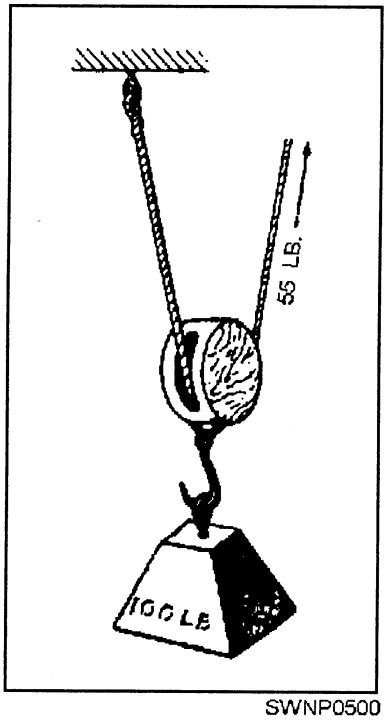

Figure 5B

IN ANSWERING QUESTION 5-15, REFER TO FIGURE 5B.

5-15. What type of tackle is used to lift the weight shown in figure 5B?

1. Single luff tackle
2. Gun tackle
3. Runner
4. Single whip tackle

5-16. In what type of tackle is the running block usually rigged with its sheaves at a right angle to the sheaves of the standing block?

1. A twofold purchase
2. A single luff
3. A double luff
4. A gun

5-17. What is the mechanical advantage of gun tackle when it is inverted?

1. 1
2. 2
3. 3
4. 4

5-18. A threefold purchase is made of two triple sheave blocks and provides a mechanical advantaqe of what value?

1. 4
2. 6
3. 8
4. 10

5-19. Determine the mechanical advantage of a compound tackle using two inverted luff tackles.

1. 8
2. 12
3. 16
4. 20

5-20. When the necessary allowance for friction is made, what is the safe working load (SWL) of a double-luff tackle reeved a with line that has a SWL of 3 tons?

1. 5 tons
2. 10 tons
3. 15 tons
4. 20 tons

Learning Objective: Identify the various means used to lift, move, or support heavy loads.

5-21. What are the primary advantages of wire rope slings?

1. Resiliency and strength
2. Strength and hardness
3. Flexibility and weight
4. Flexibility and strength

5-22. When compared to wire rope slings, fiber line slings offer the advantage of protecting the finished material; however, they are not as strong as wire rope and are easily damaged by sharp edges on material.

1. True
2. False

5-23. Chain slings offer which of the following advantages?

1. Resistance to abrasion
2. Best for slinging hot loads
3. Best for handling loads with sharp edges
4. All of the above

5-24. "Strap" is the term commonly used when referring to what type of sling?

1. Single leg
2. Endless
3. Fiber line
4. Wire rope

5-25. When the weight is evenly distributed among the slings, how many 1/2-inch chain slings will you need to hoist a 5-ton load safely?

1. One
2. Two
3. Three
4. Four

5-26. Why are chain slings less reliable than fiber line or wire rope slings?

1. They have less resistance to stress and strain
2. They have welded links
3. Their links may crystallize and snap without warning
4. They cannot be protected from rust

5-27. When using rope yarn or wire to mouse a hook, you should make how many wraps?

1. 10 to 14
2. 8 to 10
3. 5 t0 7
4. 3 t0 5

5-28. What is the safe working load (SWL) of a 3/4-inch-diameter hook?

1. 500 pounds
2. 750 pounds
3. 1,000 pounds
4. 1,250 pounds

5-29. What is the SWL of a 1/2-inch-diameter shackle?

1. 1,000 pounds
2. 1,250 pounds
3. 1,500 pounds
4. 1,750 pounds

5-30. What is the small platform called that is used to store small lot items that can then be moved as one large item instead of piece by piece?

1. A sling
2. A spreader bar
3. A bridle
4. A pallet

5-31. What jack is used for tightening lines and bracing parts on bridge construction?

1. A ratchet
2. A screw
3. A steamboat
4. A hydraulic

5-32. When making a turn with a load on rollers, you should point the front and rear rollers in what direction?

1. Slightly opposite the direction of the turn
2. The front rollers slightly opposite to the direction of the turn with the rear rollers pointing slightly in the direction of the turn
3. Both slightly in the direction of the turn
4. The front rollers must be slightly, inclined in the direction of the turn with the rear of the rollers in the opposite direction

5-33. Blocking and cribbing are often necessary as a safety measure to keep an object stationary in position. This action can prevent accidental injury to personnel who must work near these heavy objects.

1. True
2. False

Learning Objective: Identify the procedures for the construction, placement, and application of various types of scaffolding.

5-34. What is the maximum length of a swinging platform equipped with reinforcing under rails?

1. 14 feet
2. 18 feet 6 inches
3. 22 feet
4. 24 feet 6 inches

5-35. On a swinging platform, at what distance from the ends of each beam are the stops located?

1. 12 inches
2. 14 inches
3. 16 inches
4. 18 inches

5-36. A boatswain's chair should be used only if no other scaffolding means are not available.

1. True
2. False

5-37. If secured properly, the material used by a crew working on a scaffold can be stored on another scaffold.

1. True
2. False

5-38. Handlines should be used to raise and lower objects from scaffolding when they cannot be reached easily by hand.

1. True
2. False

Learning Objective: Describe the various types of field-erected hoisting devices.

5-39. What is the maximum height limit for an 8-inch-diameter gin pole?

1. 20 feet
2. 30 feet
3. 40 feet
4. 50 feet

5-40. What is the safe capacity of a 40-foot spruce timber gin pole that has a 10-inch diameter?

1. 6,000 pounds
2. 7,000 pounds
3. 8,000 pounds
4. 9,000 pounds

5-41. How long should the guy ropes be for a 15-foot gin pole?

1. 30 feet
2. 45 feet
3. 60 feet
4. 75 feet

5-42. To what depth should the hole be dug for the base of a gin pole?

1. 6 feet
2. 2 feet
3. 3 feet
4. 4 feet

5-43. When a gin pole is being erected, the rear guy line must be kept under tension to prevent the pole from swinging and throwing all of its weight on one of the side guys.

1. True
2. False

5-44. What are the primary advantages of using the tripod over other rigging installations?

1. Load capacity and stability
2. Load capacity and cost
3. No guy lines required and load capacity
4. Stability and no guy lines required

5-45. The strength of a tripod is directly affected by the strength of the rope and the lashings used.

1. True
2. False

5-46. When shears are used to lift heavy loads, the length to diameter (L/D) ratio should not exceed what number?

1. 40
2. 50
3. 60
4. 70

5-47. What is the maximum allowable drift (inclination), in degrees, for shears?

1. 30
2. 35
3. 40
4. 45

5-48. When shears are erected, the spread of the legs should equal what length?

1. One fifth of the length of the legs
2. One fourth of the length of the legs
3. One third of the length of the legs
4. One half of the length of the legs

Learning Objective: Identify the purpose, types, and uses of reinforcing steel in concrete.

5-49. What is the primary factor that determines the strength of concrete?

i. Dryness
2. Water-to-cement ratio
3. Age
4. Type of steel reinforcement

5-50. Concrete is strong in tension but weak in compression.

1. True
2. False

5-51. Which of the following factors make steel the best material for reinforcing concrete?

1. Steel adds compressive strength
2. The expansion properties of both steel and concrete are approximately the same
3. Steel is easily bent to fit all shapes of forms
4. Steel adheres well to concrete

5-52. What type of surface condition on rebar provides the best adherence with concrete?

1. Clean and smooth
2. Loose or scaly rust
3. Painted
4. Light firm layer of rust

5-53. On what part of rebar are diameter measurements taken?

1. The round/square where there are no deformations
2. Across the deformations where the diameter is greatest
3. The diagonal of its widest section
4. The diameter of the deformation plus the height of the deformation

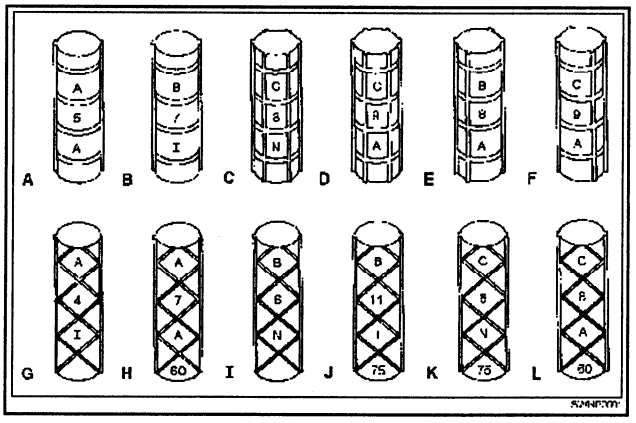

Figure 5C

IN ANSWERING QUESTIONS 5-54 THROUGH 5-56, REFER TO FIGURE 5C.

5-54. The identifying marks of bar D indicate what grade of rebar?

1. 40,000 psi
2. 50,000 psi
3. 60,000 psi
4. 75,000 psi

5-55. What types of rebar are equal in size, type, and grade in both bar-branding systems?

1. E and L
2. D and F
3. B and J
4. A and F

5-56. What types of rebar are rolled axle steel?

1. A, D, F, L
2. B, C, G, K
3. C, E, N, A
4. H, I, J, K

5-57. When the number designation 8x8x1Ox1O is used, what do these numbers indicate about a roll of wire mesh?

1. The wire gauge is 8 and the crosswise spacing is 10 inches
2. The wire gauge is 10 and crosswise and lengthwise spacing is 8 inches
3. The wire gauge is 8 and the length spacing is 8 inches
4. The crosswise spacing is 10 inches and the wire gauge is 10

Learning Objective: Identify the fundamentals of bending, tying, and placing reinforcing bars.

5-58. What size pin diameter is required when a bend is made on a #9 bar?

1. 8 1/2 inches
2. 9 inches
3. 11 1/4 inches
4. 18 inches

QUESTIONS 5-59 THROUGH 5-62 CONCERN THE HYDRAULIC IRONMASTER ROD BENDER.

5-59. What is the maximum capacity for cold working rebar?

1. #7
2. #9
3. #10
4. #11

5-60. The bend angle which is set on the control rod is graduated into (a) what range of degrees at (b) what intervals?

1. (a) 10° to 360° (b) 10°
2. (a) 5° to 180° (b) 10°
3. (a) 5° to 190° (b) 5°
4. (a) 5° to 180° (b) 5°

5-61. What is the purpose of the shearing support?

1. To prevent the bars from kicking up during shearing operations
2. To prevent the breaking of bars after bending past 190 degrees
3. To allow the table to back off slightly after bending
4. To disengage the bending cylinder and return the rack to neutral

5-62. A bar marked 1 B0409 is to be bent into a 180-degree S-shape that is considered a standard bend. What is the minimum diameter of the pin around which the bar can be bent?

1. 8 inches
2. 2 inches
3. 3 inches
4. 4 inches

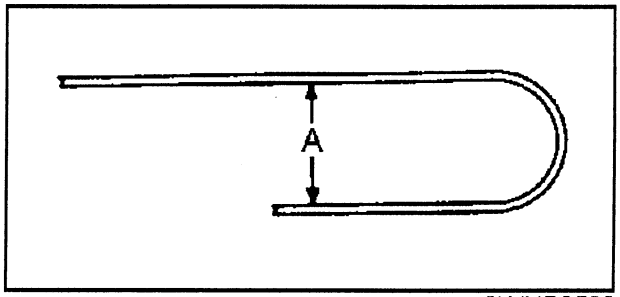

FIGURE 5D

IN ANSWERING QUESTION 5-63, REFER TO FIGURE 5D.

5-63. In checking the building plans, you notice that six rebars marked 3C0205 are to be bent with standard 180-degree hooks at one end. Distance A should equal

1. 1 1/2 inches
2. 2 1/2 inches
3. 3 1/2 inches
4. 4 inches

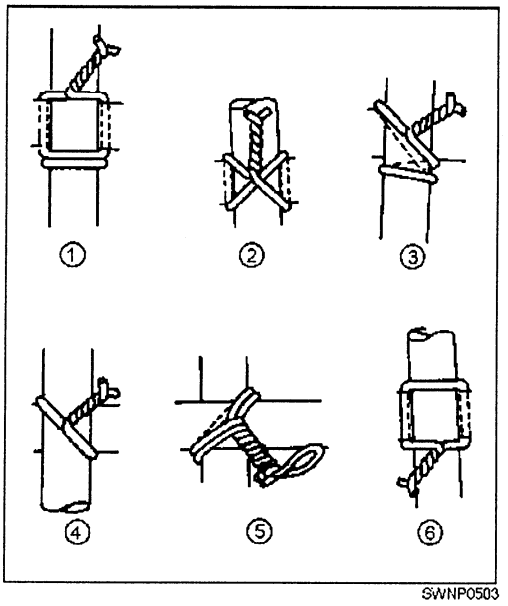

Figure 5E

IN ANSWERING QUESTIONS 5-64 THROUGH 5-66, REFER TO FIGURE 5E.

5-64. What tie is most often used in floor slabs?

1. 6
2. 2
3. 3
4. 4

5-65. What type is tie #l?

1. Double-strand single strand
2. Saddle tie with a twist
3. Figure eight tie
4. Saddle tie

5-66. What tie will cause the LEAST amount of twisting action on rebar?

1. 5
2. 2
3. 3
4. 4

5-67. In concrete, proper coverage of the bars is required to prevent what condition(s) from developing?

1. Fire, weather, and corrosion damage
2. Bars expanding and breaking through the concrete
3. Rust seeping to the surface of the concrete
4. Loss of tensile strength in the bars

5-68. In footings between the ground and steel, what minimum thickness of concrete should be provided?

1. 6 inches
2. 8 inches
3. 3 inches
4. 4 inches

5-69. When splicing 1/2-inch-thick rebar of reinforcing steel without the benefit of drawing specifications, what is the minimum distance that you should lap the bar?

1. 12 inches
2. 15 inches
3. 20 inches
4. 25 inches

5-70. When a column assembly of rebar is raised into place, the reinforcing steel is tied to the column form at intervals of what distance?

1. 5 feet
2. 2 feet
3. 3 feet
4. 4 feet